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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,882	01/30/2001	Chuan-Bao Wang	00250	2679

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EXAMINER

SINES, BRIAN J

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 07/01/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/771,882

Applicant(s)

WANG ET AL.

Examiner

Brian J. Sines

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group I, claims 1 – 14 in Paper No. 3 is acknowledged.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claims 15 – 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 3.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 4 and 6 – 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al. (U.S. Pat. No. 4,246,228). Regarding claim 1, Jones et al. teach a combustible gas detection element comprising an electric heating element or filament having a first coating layer, comprising a pellet with a precious metal oxidation catalyst supported on a porous oxide, such as zeolite; and a second coating layer

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overlaying the first coating layer, which acts as a molecular filter, wherein the second layer comprises a catalytic compound supported on a porous oxide comprising zeolite as well (see col. 1, line 1 – col. 2, line 28). Regarding claim 2, Jones et al. teach that the catalytic compound may consist of metal-loaded zeolites, such as zeolite incorporating palladium or platinum (see col. 1, lines 38 – 56). Regarding claim 3, Jones et al. teach the use of alumina as a ceramic carrier material (see col. 1, lines 38 – 44). Regarding claim 4, Jones et al. teach that the heating element (6) comprises a helical filament heater (see col. 2, lines 11 – 28; figure 1). Regarding claim 6, Jones et al. teach that the catalytic compound of the second coating layer is in solid form (see col. 1, lines 45 – 51). Regarding claim 7, Jones et al. teach that the catalytic compound, such as platinum and palladium, are in powder form (see col. 1, line 66 – col. 2, line 3). Regarding claim 8, Jones et al. teach the incorporation of additional layers (see col. 1, lines 45 – 51). Jones et al. teach that the second layer effectively acts as a molecular filter external to the pellet (see col. 1, lines 45 – 51). Regarding claim 10, Jones et al. teach that the external filter layer is formed from a homogeneous mixture resulting in a one-piece, monolithic structure (see col. 1, lines 45 – 51). Regarding claim 11, Jones et al. teach that the second coating layer may comprise multiple layers comprising a precious metal catalyst, such as platinum or palladium, supported on a porous oxide comprising zeolite (see col. 1, lines 38 – 56). Regarding claim 12, Jones et al. teach the further incorporation of a compensating element (see col. 2, lines 29 – 62). Regarding claim 13, as shown in figure 2, Jones et al. teach an electrical circuit to which the sensing element and the compensating element are connected (see col. 2, lines 29

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– 62). Regarding claim 14, as shown in figure 2, Jones et al. teach a balanced or wheatstone bridge circuit.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (U.S. Pat. No. 4,123,225) in view of Cheng et al. (U.S. Pat. No. 5,670,115). Jones et al. teach that the heating element (6) comprises a helical filament heater (see figure 1, col. 2, lines 11 – 28). Jones et al. is silent to the teaching of incorporating a heating element comprising an electric film heater. Cheng et al. do teach the incorporation of an electric film heater (52) with a gas sensor (30) (see col. 7, lines 51 – 62; figure 5). It would have been obvious to one of ordinary skill in the art to incorporate an electric film heater, as taught by Cheng et al., with the gas detector, as taught by Jones et al., in order to provide more effective heating control to the sensor due to the difference in

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heat transfer properties afforded by the shape and surface area of the heater in the form of a film, rather than a helical wire configuration, depending upon the shape of the gas sensor. Furthermore, the Courts have held that the change in form or shape is an obvious engineering design (see *In re Dailey*, 149 USPQ 47 (CCPA 1976)).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wilkinson-Tough teaches a gas sensor element comprising a multi-layered structure in order to lengthen service life. Doncaster et al. teach a gas sensor incorporating a filter material in order to extend the life of the detector element. McNally teaches a combustible gas detector having an improved detector element for a Wheatstone bridge circuit, which incorporates the use of palladium oxide.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (703) 305-0401. The examiner can normally be reached on Monday - Friday (11:30 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (703) 308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

BJS
June 25, 2003


Jili Warden
Supervisory Patent Examiner
Technology Center 1700